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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,545	02/12/2004	Kristian DiMatteo	10123/04501	5754

7590 03/28/2007  
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EXAMINER
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SCHELL, LAURA C

ART UNIT	PAPER NUMBER
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3767

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/28/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/777,545	Applicant(s) DIMATTEO ET AL.	
	Examiner Laura C. Schell	Art Unit 3767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-28 is/are pending in the application.
- 4a) Of the above claim(s) 14, 15, 22 and 24-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13, 16-21, 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Quinn (US Patent No. 6,461,321). Quinn discloses a distal tip for a catheter (Fig. 5) comprising: first (59a) and second (59b) lumens extending there through, wherein in an operative configuration, the first and second lumens are coupled to first (27a) and second (27b) lumens of a dual lumen catheter (24); a first opening (37) fluidly connected to the first lumen (59a) for inflow of fluid from a body lumen into which the distal tip is inserted in a normal mode of operation and for outflow of fluid thereto in a reverse mode of operation (col. 3, lines 7-11 and col. 7, lines 57-61); a second opening (89) fluidly connected to the second lumen (59b), the second opening being disposed distally from the first opening and separated therefrom by a selected stagger distance for outflow of the fluid therefrom when the catheter is in the normal mode of operation and for inflow of fluid from the body lumen in a reverse mode of operation (col. 3, lines

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7-11 and col. 7, lines 57-61); a contoured flow deflection element (93) directing, in the reverse mode of operation, outflow from the first opening away from the second opening (col. 7, lines 57-61 state that if the flow is reversed such that blood flows out through the first opening then the inflow of blood through the second opening does not mix with the outflow of blood because the two are staggered apart, and the flow of blood out from the first opening (37) would inherently hit the ramped portion of the bolus (20) and be deflected upward and away from the second opening); a contoured outlet portion (78) of the second opening reducing an outflow velocity therefrom in the normal mode of operation (col. 7, lines 53-56); and side walls extending between the first opening and the contoured flow deflection element (Fig. 5 discloses that the first opening actually opens at point (73), and Fig. 1 discloses that a side wall (labeled in Fig. 1 as either portion 37 or 98) that extends from the first opening (73) to the contoured flow deflection element (93). The portions of catheter walls that extend between these two points are walls that are found on the sides of the catheter. This is the examiner's interpretation as Applicant's claim language does not include any other structure of the side walls which would overcome the sidewalls disclosed by Quinn).

In reference to claim 2, Quinn further discloses that the first and second openings are disposed on opposite sides of the distal tip (Fig. 5 and also see col. 3, lines 41-47) thereof.

In reference to claim 3, Quinn further discloses that the first and second openings have orifices (37 and 89) extending in planes angled with respect to a longitudinal axis (X) of the distal tip (as disclosed in Fig. 5).

In reference to claim 4, Quinn also discloses that the contoured flow deflection element (57) is adapted to direct outflow from the second opening (89) away from the first opening (37) in the normal mode of operation (Fig. 5 shows that the fluid flow would be directed along lumen 56 and would be then be directed outwards and downwards in the opposite direction from the first opening).

In reference to claim 5, Quinn also discloses that the distal tip is comprised of an atraumatic tip (col. 2, lines 65-66).

In reference to claim 6, Quinn further discloses that the first opening includes a first ramp portion (area nearest 20 in Fig. 5) that inherently deflects outflow therefrom away from a longitudinal axis of the distal tip when in the reverse mode of operation (col. 7, lines 57-61).

In reference to claim 8, Quinn further discloses that the second opening (89) includes a second ramp portion (78) deflecting outflow from the second opening away from a longitudinal axis (X) of the distal tip in the normal mode (Fig. 5).

In reference to claim 9, Quinn also discloses that the second opening comprises an expanded section (Fig. 2, 71) increasing an exit plane cross sectional area of the second orifice (Fig. 5 also shows that the second orifice (89) expands upwards above the X-plane to create the expanded area).

In reference to claim 10, Quinn also discloses that the first and second lumens have D-shaped cross sections (Fig. 7).

In reference to claim 11, Quinn further discloses that the first ramp (near 20) is aligned with the first opening (37) and the second ramp (78) is aligned with the second opening (89) and there is an atraumatic distal tip (Fig. 2, 99).

In reference to claim 12, Quinn further discloses that the maximum radial dimension of the contoured bolus (99) is less than a radius of a catheter to which the distal tip is to be coupled (col. 6, lines 60-65).

Claims 16-21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Quinn (US Patent No. 6,461,321). Quinn further discloses a flow control tip for a multi-lumen catheter comprising: an attachment portion (Fig. 5) adapted to fluidly connect to a distal portion of a catheter (24). Fig. 5 discloses that the flow control tip (93) attaches to the distal end of the catheter (24) at the region disclosed as (34), also see col. 5, lines 49-51. Quinn further discloses a contoured bolus (93) defining at least a portion of an inlet (37) and an outlet (89) of the distal tip so that, when coupled to a catheter, the inlet is coupled to a first one of the catheter lumens (59a) and the outlet is coupled to a second one of the catheter lumens (59b), and a flow deflector (78) directing fluids exiting the inlet in a first mode away from the outlet and side walls extending between the inlet and the bolus (Fig. 5 discloses that the first opening actually opens at point (73), and Fig. 1 discloses that a side wall (labeled in Fig. 1 as either portion 37 or 98) that extends from the first opening (73) to the contoured flow deflection element (93). The portions of catheter walls that extend between these two points are walls that are found on the sides of the catheter. This is the examiner's interpretation as Applicant's

claim language does not include any other structure of the side walls which would overcome the sidewalls disclosed by Quinn) wherein the contoured bolus defines a specified stagger distance between the inlet and the outlet (Fig. 1).

In reference to claim 17, Quinn also discloses that the contoured bolus further comprises a second flow deflector (near 20) directing fluid exiting the outlet in a second mode away from the inlet (col. 7, lines 57-61).

In reference to claim 18, Quinn also discloses that the inlet and the outlet are formed on opposite surfaces of the contoured bolus (Fig. 5, also see col. 3, lines 41-47).

In reference to claim 19, Quinn further discloses that the flow deflector comprises a ramp (near 20) disposed adjacent an inlet opening (37).

In reference to claim 20, Quinn also discloses that the contoured bolus defines an expanded section (Fig. 5 discloses that directly above element 91, the lumen 56 expands upwards so that it expands above the x-axis) which increases an exit plane cross-sectional area of the outlet.

In reference to claim 21, Quinn further discloses that the size of the expanded section is selected to reduce an exit pressure (col. 7, lines 51-57).

In reference to claim 23, Quinn also discloses that the attachment portion is adapted for attachment to the catheter by thermal bonding (col. 5, lines 51-55).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quinn (US Patent No. 6,461,321) in view of Dasse et al. (US Patent No. 5,171,216). Quinn discloses the device substantially as claimed, however, Quinn does not disclose expressly that the stagger distance between the openings is between 1 and 1.5 cm. Dasse, however, discloses a distal tip of a catheter with a stagger distance between the openings (Fig. 3, 14 and 16) that can be anywhere in the range of 1-4 cm (see col. 5, lines 7-13). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Quinn with the stagger distance as specified by Dasse in order to provide an optimal distance between the openings such that mixing of the blood does not occur, yet also to ensure that the distal tip of the catheter can still be maneuverable within a vascular system.

### ***Response to Arguments***

Applicant's arguments filed 9/28/2006 have been fully considered but they are not persuasive in light of the new interpretation of the Quinn reference. Applicant argues that Quinn does not disclose "side walls extending between the first opening and the contoured flow deflection element". However, as presented above, there are indeed walls of the catheter which extend between the first opening and the flow deflection element and the walls are located on the sides of the catheter. Furthermore, Applicant argues that "there are no side extensions or other structures formed adjacent thereto for



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preventing outflow from spilling radially around the bolus 20", however, this structure and language describing structure is not within the claims.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Schell whose telephone number is (571) 272-7881. The examiner can normally be reached on Monday-Friday 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Sirmons can be reached on (571) 272-4965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LCS

*LCS*

KEVIN C. SIRMONS  
SUPERVISORY PATENT EXAMINER

*Kevin C. Sirmons*